

Statement of Status and Support for Changes to the Claims

Status of Claims

Claims 1-42 are pending.

Support for Claim Changes and New Claims

Claims	Location in the Specification Supporting the Change or New Claim
1. A method of manufacturing a thin film magnetic head upon a substrate comprising [the] steps of: depositing a magnetic bottom pole layer upon the substrate, <u>said magnetic bottom pole layer comprising a magnetic bottom pole tip;</u>	Title; Abstract, lines 2-3; FIGs. 2 and 3B-3I (no. 26); col. 1, lines 16-18; col. 3, lines 1-3, 15-17, 25-28, 40-42, 56, and 63-68; col. 4, lines 3-5, and 37; col. 5, lines 4-5, 15, 17-18, 19, and 57-58; col. 6, lines 21-23, and 43; and col. 7, lines 22-24
depositing a gap material layer upon <u>at least the magnetic bottom pole tip of the magnetic bottom pole layer;</u>	FIGs. 2, and 3C-3I (no. 28); col. 3, lines 7-10, 19-21, and line 65 to col. 4, line 5; and col. 5, lines 4-5, 19-26, 30-33, 45-55, and 58-59
<u>forming a photoresist mask over the gap material layer, said photoresist mask includes photoresist dams defining an uncovered area between the photoresist dams;</u>	FIGs. 3D-3F (no. 29); col. 3, lines 22-25, 29-31, and 59-61; and col. 5, lines 4-5, and 25-33
depositing <u>a magnetic upper pole tip portion of a magnetic upper pole [layer] upon the gap material layer through [a] the photoresist mask in the uncovered area;</u>	Title; Abstract, lines 2-3; FIGs. 2 and 3E-3I (no. 24); col. 1, lines 16-18; col. 3, lines 3-4, 9, 21-28, 40-42, and 63-67; col. 4, lines 3-5; col. 5, lines 4-5, 25-28, 30-34, and 57-58; col. 6, lines 21-23; and col. 7, lines 22-24
electroplating through the same photoresist mask a selectively etchable platable metal sacrificial mask layer upon the magnetic upper <u>[pole layer] pole tip portion;</u>	Abstract, lines 3-4; FIGs. 3F-3H (no. 30); col. 1, lines 16-18; col. 3, lines 7-10, and 11-14; and col. 5, lines 4-5, and 33-37
depositing a top sacrificial mask layer on the metal sacrificial mask layer;	no change
removing <u>at least the photoresist dams of the photoresist mask defining the magnetic upper pole tip portion;</u>	FIGs. 3G-3I; col. 3, lines 59-61; and col. 5, lines 4-5, 25-33, and 45-46

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removing portions of the gap layer and the magnetic bottom pole layer not aligned with the <u>magnetic upper pole tip portion</u> [pole layer], whereby the top sacrificial mask layer and the metal sacrificial mask layer protect a portion of the magnetic upper [pole layer] <u>pole tip portion</u> , the gap layer and the magnetic bottom pole layer; and	Title; FIG. 3G (nos. 28, 26); col. 3, lines 7-10, and 59 to col. 4, line 2; col. 4, lines 3-5; and col. 5, lines 4-5, 45-52, and 55-60
chemically etching the metal sacrificial mask layer with a selective chemical etch to remove the metal sacrificial mask layer and lift off the top sacrificial mask layer.	no change
2. The method of claim 1 wherein the step of removing non-aligned portions of the magnetic bottom pole [layer] <u>tip</u> comprises ion milling the <u>magnetic bottom pole [layer] tip</u> .	Abstract, lines 6-7; FIGs. 3G-3I (no. 26); col. 3, lines 7-10, and 59 to col. 4, line 2; col. 4, lines 3-5; and col. 5, lines 4-5, 50-52, and 55-60
15. The method of claim [14] <u>10</u> wherein the step of removing non-aligned portions comprises ion milling the gap layer and the bottom magnetic pole layer following the step of stripping the photoresist mask.	Abstract, lines 6-7; FIGs. 3G-3I (nos. 26, 28); col. 3, lines 7-10, and 59 to col. 4, line 2; col. 4, lines 3-5; and col. 5, lines 4-5, 45-52, and 55-60
19. The method of <u>claim</u> 14 including the step of successively etching off successive sacrificial mask layers prior to etching off the first sacrificial mask layer following the step of removing non-aligned portions.	N/A
31. The method of claim 10 wherein: said magnetic bottom pole layer comprises a magnetic bottom pole tip;	Title; Abstract, lines 2-3; FIGs. 2 and 3B-3I (no. 26); col. 1, lines 16-18; col. 3, lines 1-3, 15-17, 25-28, 40-42, 56, and 63-68; col. 4, lines 3-5, and 37; col. 5, lines 4-5, 15, 17-18, 19, and 57-58; col. 6, lines 21-23, and 43; and col. 7, lines 22-24
the step of depositing a gap material layer upon the magnetic bottom pole layer comprises depositing a gap material layer upon at least the magnetic bottom pole tip;	FIGs. 2, and 3C-3I (no. 28); col. 3, lines 7-10, 19-21, and line 65 to col. 4, line 5; and col. 5, lines 4-5, 19-26, 30-33, 45-55, and 58-59

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said photoresist mask includes photoresist dams defining an uncovered area between the photoresist dams;	FIGs. 3D-3F (no. 29); col. 3, lines 22-25, 29-31, and 59-61; and col. 5, lines 4-5, and 25-33
the step of electroplating through a photoresist mask a magnetic upper pole layer upon the gap comprises electroplating through the photoresist mask in the uncovered area a magnetic upper pole tip portion over the gap material layer;	Title; Abstract, lines 2-3; FIGs. 2 and 3E-3I (no. 24); col. 1, lines 16-18; col. 3, lines 3-4, 9, 21-28, 40-42, and 63-67; col. 4, lines 3-5; col. 5, lines 4-5, 25-28, 30-34, and 57-58; col. 6, lines 21-23; and col. 7, lines 22-24
the step of electroplating over the magnetic upper pole through the same photoresist mask a first sacrificial mask layer comprising a metal comprises electroplating over the magnetic upper pole tip portion through the same photoresist mask a metallic sacrificial mask;	Abstract, lines 3-4; FIGs. 3F-3H (no. 30); col. 1, lines 16-18; col. 3, lines 7-10, and 11-14; and col. 5, lines 4-5, and 33-37
the step of removing the photoresist mask comprises removing at least the photoresist dams defining the magnetic upper pole tip portion; and	FIGs. 3G-3I; col. 3, lines 59-61; and col. 5, lines 4-5, 25-33, and 45-46
the step of removing portions of the gap layer and the magnetic bottom pole layer not aligned with the upper pole layer comprises removing portions of the gap material layer and the magnetic bottom pole tip not aligned with the magnetic upper pole tip portion, whereby the metallic sacrificial mask protects the magnetic upper pole tip portion and portions of the underlying gap material and the magnetic bottom pole tip.	Title; FIG. 3G (nos. 28, 26); col. 3, lines 7-10, and 59 to col. 4, line 2; col. 4, lines 3-5; and col. 5, lines 4-5, 45-52, and 55-60
32. The method of claim 31 wherein said metallic sacrificial mask comprises a nickel-iron alloy.	Col. 5, lines 34-37, and 42-44; and col. 7, lines 22-24
33. The method of claim 32 wherein the magnetic upper pole tip portion comprises a nickel-iron alloy.	FIGs. 2 and 3E-3I (no. 24); col. 3, lines 51-53; col. 4, lines 54-56; and col. 5, lines 4-5, and 30-33
34. The method of claim 33 wherein the step of electroplating a magnetic upper pole tip portion and the step of electroplating a metallic sacrificial mask comprise electroplating an alloy comprising nickel-iron alloy.	FIGs. 3E-3I (nos. 24, 30); col. 3, lines 51-53; col. 4, lines 54-56; and col. 5, lines 4-5, 30-33, 34-37, and 42-44

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35. The method of claim 31 wherein the step of removing non-aligned portions comprises ion milling or dry etching the non-aligned portions.	Col. 3, lines 7-8
36. The method of claim 31 wherein the step of removing non-aligned portions comprises ion milling of non-aligned portions of the magnetic bottom pole tip following the removal of non-aligned portions of the gap layer.	Abstract, lines 6-7; FIGs. 3G-3I (nos. 26, 28); col. 3, lines 7-10, and 59 to col. 4, line 2; col. 4, lines 3-5; and col. 5, lines 4-5, 45-52, and 55-60
37. The method of claim 31 wherein the step of removing non-aligned portions comprises a step of chemically etching non-aligned portions of the gap layer.	FIGs. 3G-3I (no. 28); col. 3, lines 62-63; col. 4, lines 3-5; and col. 5, lines 4-5, 46-49, and 52-55
38. The method of claim 37 wherein the step of removing non-aligned portions comprises a step of ion milling or dry etching non-aligned portions of the magnetic bottom pole tip following the step of chemically etching.	FIGs. 3G-3I (nos. 26, 28); col. 3, lines 7-8, and 62-63; col. 4, lines 3-5; and col. 5, lines 4-5, 46-49, and 52-55
39. The method of claim 34 wherein the step of removing non-aligned portions comprises ion milling or dry etching the non-aligned portions.	Col. 3, lines 7-8
40. The method of claim 34 wherein the step of removing non-aligned portions comprises ion milling of non-aligned portions of the magnetic bottom pole tip following the removal of non-aligned portions of the gap layer.	Abstract, lines 6-7; FIGs. 3G-3I (nos. 26, 28); col. 3, lines 7-10, and 59 to col. 4, line 2; col. 4, lines 3-5; and col. 5, lines 4-5, 45-52, and 55-60
41. The method of claim 34 wherein the step of removing non-aligned portions comprises a step of chemically etching non-aligned portions of the gap layer.	FIGs. 3G-3I (no. 28); col. 3, lines 62-63; col. 4, lines 3-5; and col. 5, lines 4-5, 46-49, and 52-55
42. The method of claim 41 wherein the step of removing non-aligned portions comprises a step of ion milling or dry etching non-aligned portions of the magnetic bottom pole tip following the step of chemically etching.	FIGs. 3G-3I (nos. 26, 28); col. 3, lines 7-8, and 62-63; col. 4, lines 3-5; and col. 5, lines 4-5, 46-49, and 52-55

Notice of Prior Proceedings under 37 C.F.R. 1.178(b)

On March 28, 2000, Uri Cohen ("Cohen") filed a law suit in the Northern District of California, San Jose, Case No. C00-01070DLJ, against, among others, Seagate Technology, Inc. ("Seagate"). At that time Seagate was the owner by assignment of all right, title and interest in and to U.S. Patent 5,141,623 ("the '623 patent). The complaint sought an order, pursuant to 35 U.S.C. § 256, to have Cohen named as a co-inventor on U.S. Patent 4,992,901 ("the '901 patent), issued on February 12, 1991. Seagate was also the owner by assignment of all right, title and interest in and to the '901 patent. The complaint alleged that a previous agreement between Cohen and Seagate (regarding work Cohen had done for Seagate) obligated Seagate to file patent applications covering inventions made by Cohen, and other patent applications covering inventions made by others at Seagate (all of which patent applications and other patent applications were to be owned by Seagate). Seagate filed an application that issued as the '901 patent, and another application that issued as the '623 patent on the same day. The complaint further alleged that Cohen had co-invented the use of magnetic NiFe as a sacrificial mask layer in trimming pole tips to fabricate thin film heads used in disk drives. The complaint still further alleged that, because of this, Cohen ought to have been named as a co-inventor on the '901 patent. Specifically, the complaint alleged that:

41. Cohen's invention relating to the electroplating of a single metallic layer sacrificial mask, directly over the top pole, through the same photoresist mask used to plate the top pole, was described by Cohen in Item 4 of the March 28, 1989, letter of Richard Franklin, as well as in several of his draft revisions of the '623 patent application. This invention later appeared in the specification, drawings, and claims 1, 3, 5-14, 16, 18-27, 29, 31-40, and 42-50 of the '901 patent.

42. Cohen's invention of the use of NiFe during the telephone conversation described in paragraphs 18 and 19 of this Complaint later appeared, not in the '623 patent, but as claims 3, 16, 29 and 42 of the '901 patent.

During the law suit, Seagate took the position that: (a) it had properly carried out its obligations in filing patent applications leading to the '623 and the '901 patents; (b) the inventions in the two applications were distinct; (c) Cohen was not a co-inventor on the '901 patent; and (d) NiFe appearing in the '901 patent referred to non-magnetic NiFe.

Although the use of nickel-iron alloy as a sacrificial mask appears in the specification of the '623 patent (see col. 5, lines 34-37, and 42-44), it was not claimed.

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